

Figure 1: Block diagram of a MOK system.

data	Hadmark symbol (M=4)
00	++ ++
01	+ - + -
10	+ + - -
11	+ - - +

To generalize for  $M=2^b$

$$H_M = \begin{bmatrix} H_{M/2} & H_{M/2} \\ H_{M/2} & -H_{M/2} \end{bmatrix}$$

Figure 2: MOK signal set and construction.

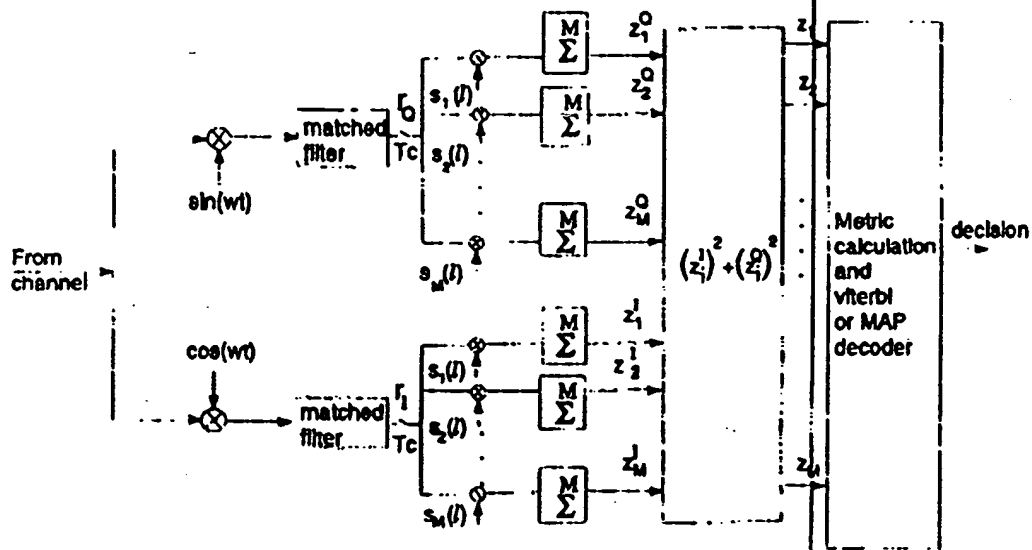


Figure 3: Noncoherent Detector of MOK signals.

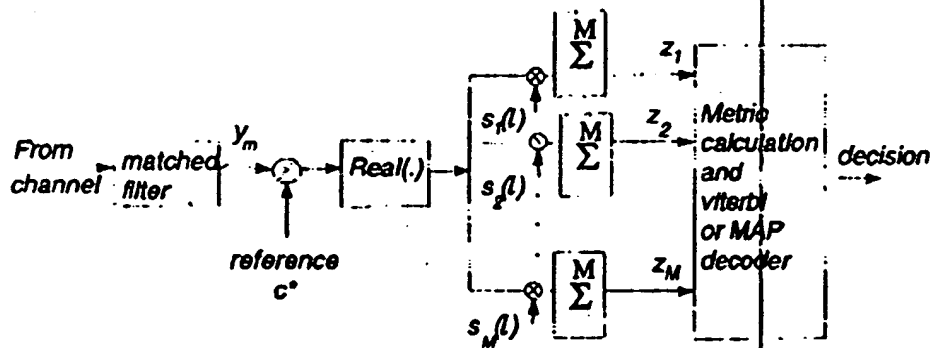


Figure 4: Coherent Detector of MOK signals.

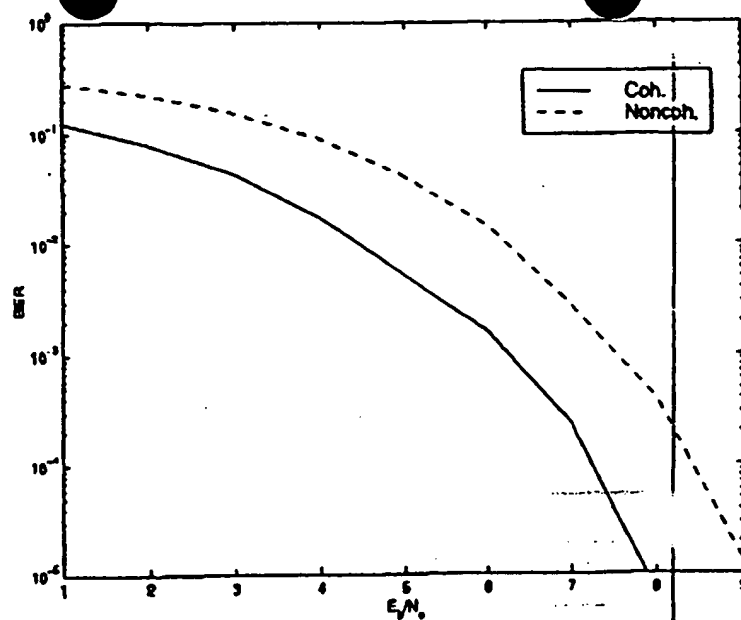


Figure 5: Performance of coherent and noncoherent detectors for convolutionally encoded MOK,  $M = 8$  in AWGN.

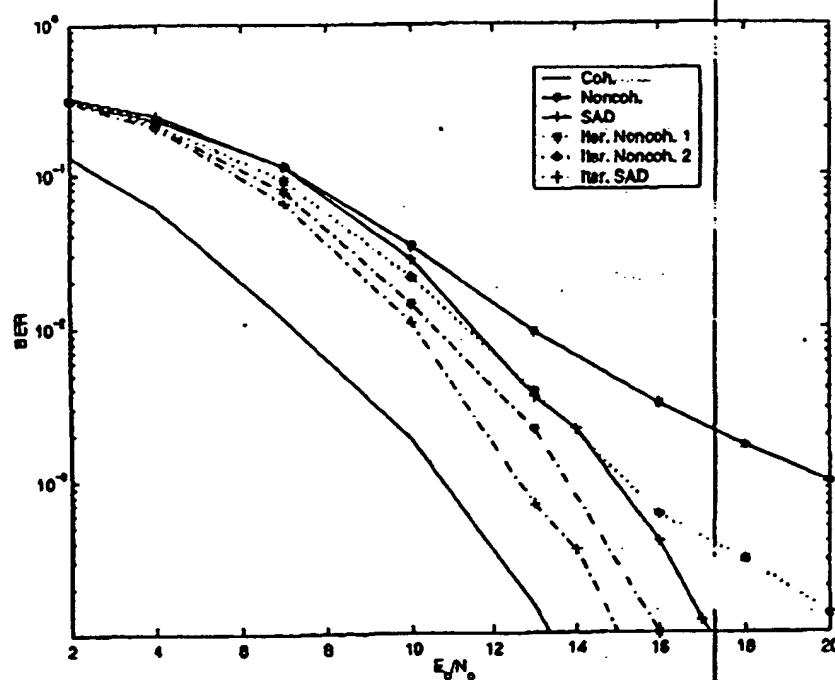


Figure 6: BER performance for MOK,  $M = 8$ ,  $J_{\max} = 10$ ,  $K = 0$  (Rayleigh Fading).

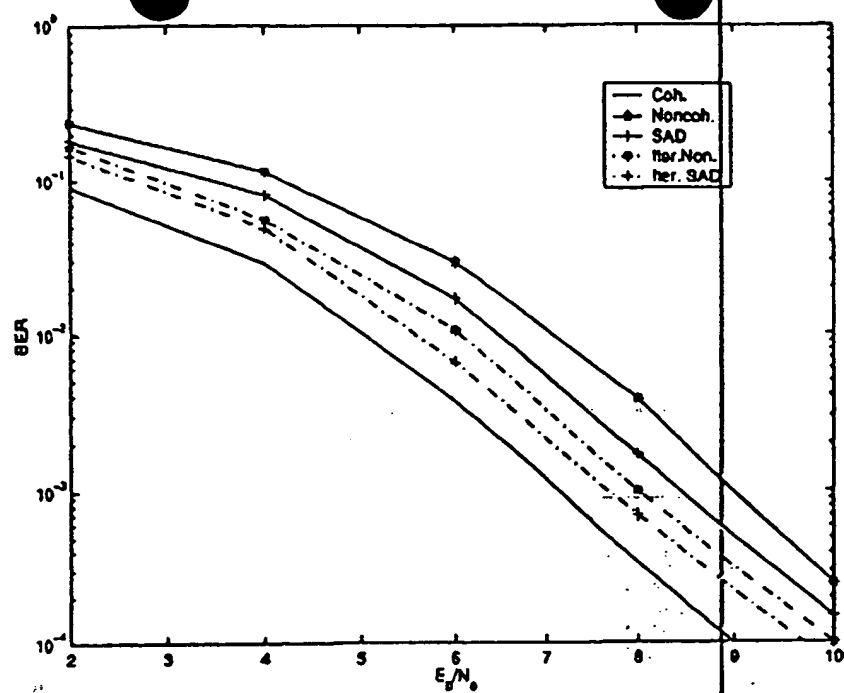


Figure 7: BER performance for MOK,  $M = 8$ ,  $J_{\max} = 10$ ,  $K = 10$  (Rician Fading).

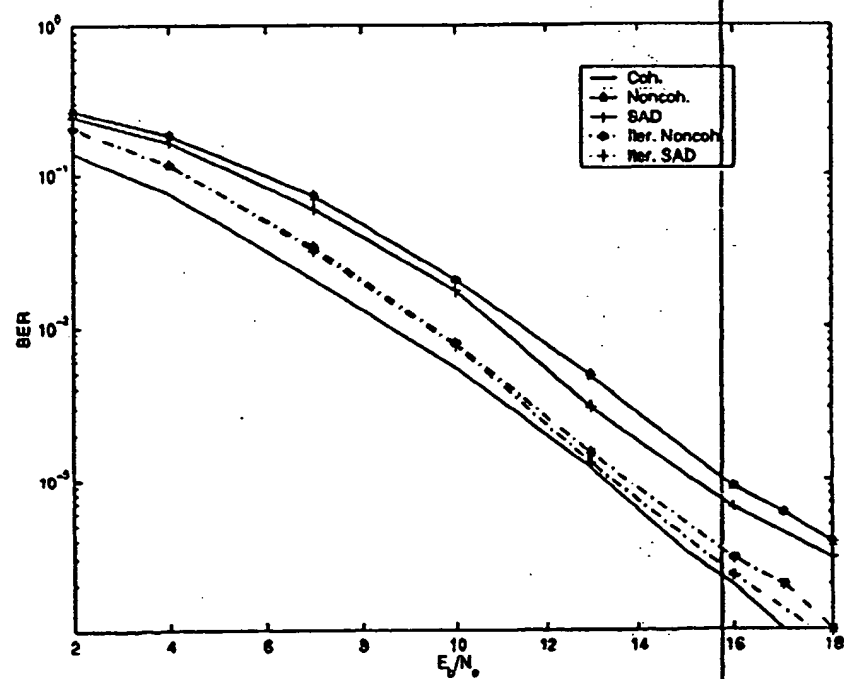


Figure 8: BER performance for MOK,  $M = 8$ ,  $J_{\max} = 40$ ,  $K = 0$  (Rayleigh Fading).

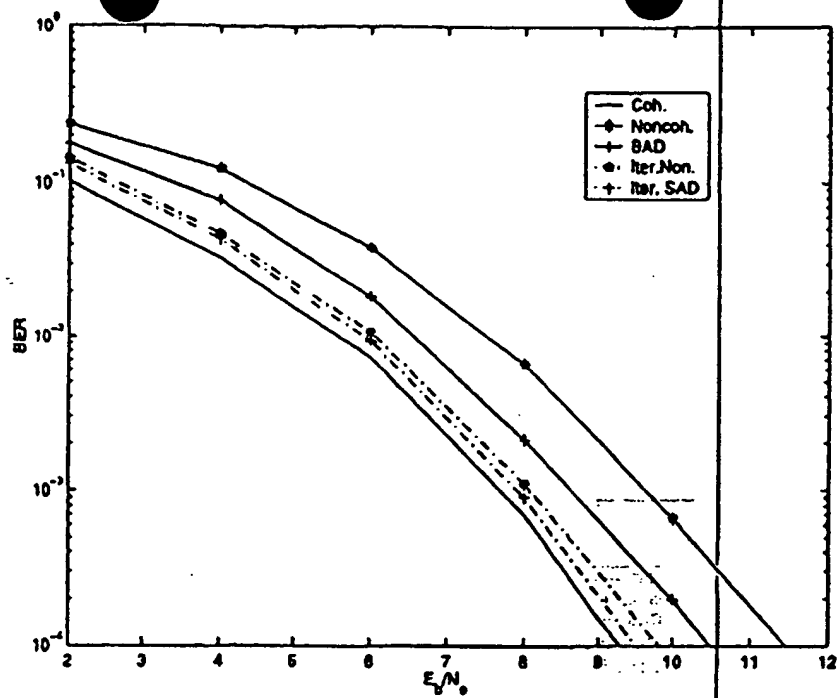


Figure 9: BER performance for MOK,  $M = 8$ ,  $J_{\max} = 40$ ,  $K = 10$  (Rician Fading).

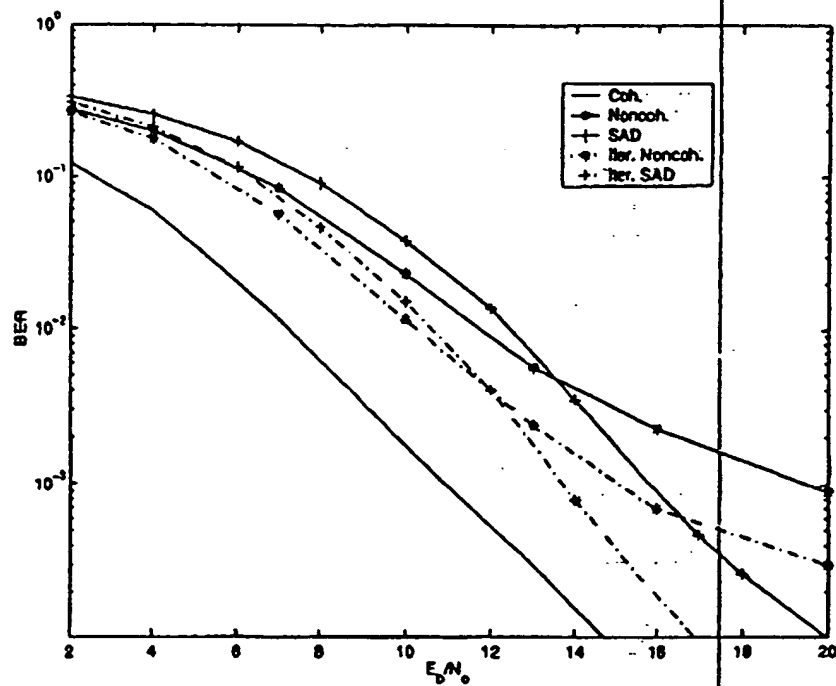


Figure 10: BER performance for MOK,  $M = 16$ ,  $J_{\max} = 20$ ,  $K = 0$  (Rayleigh Fading).

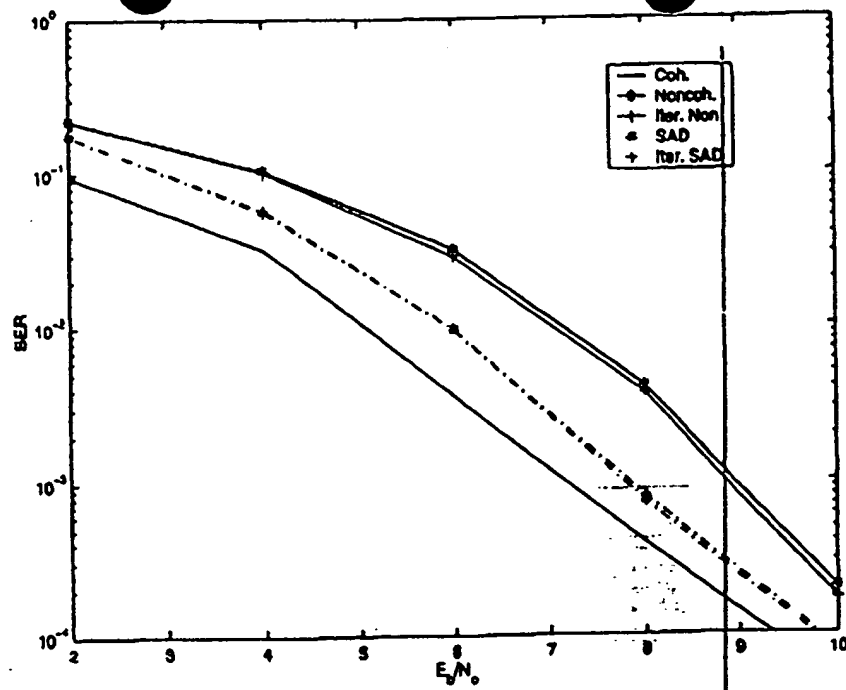


Figure 11: BER performance for MOK,  $M = 16$ ,  $J_{\max} = 20$ ,  $K = 10$  (Rician Fading).

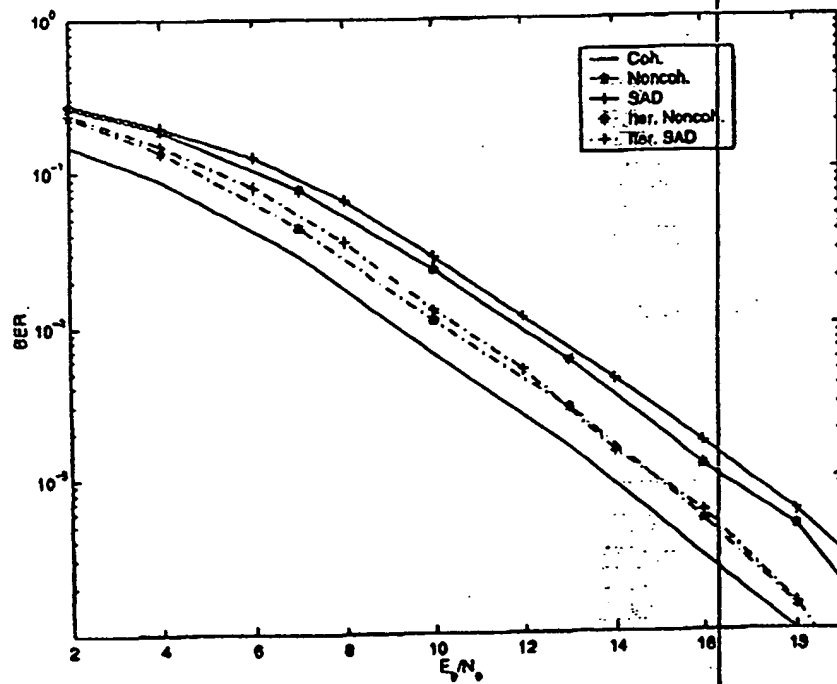


Figure 12: BER performance for MOK,  $M = 16$ ,  $J_{\max} = 80$ ,  $K = 0$  (Rayleigh Fading).

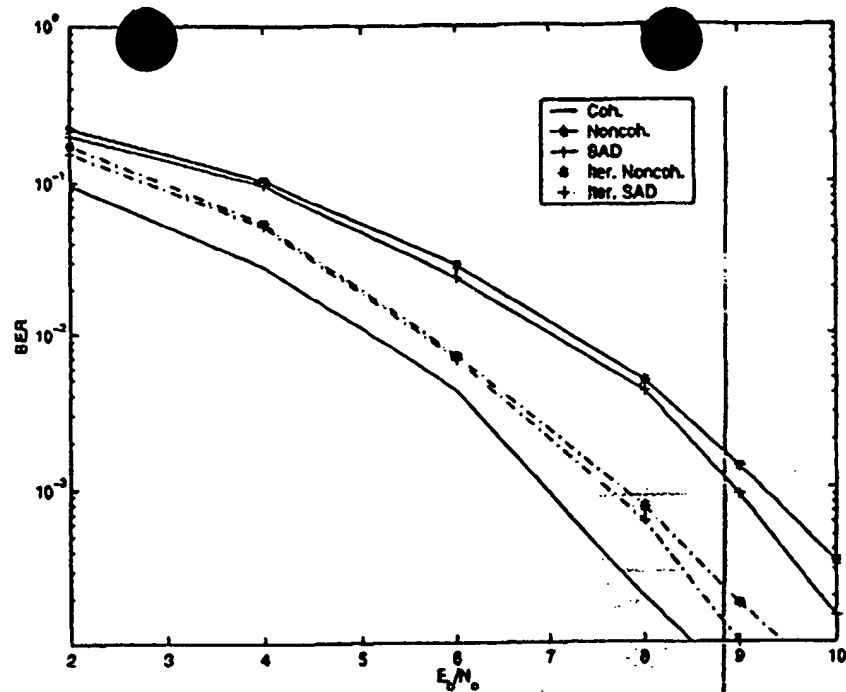


Figure 13: BER performance for MOK,  $M = 16$ ,  $J_{\max} = 80$ ,  $K = 10$  (Rician Fading).

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8 BPSK chips 256 codewords (MOK)



8 QPSK chips 65536 codewords (CCK)

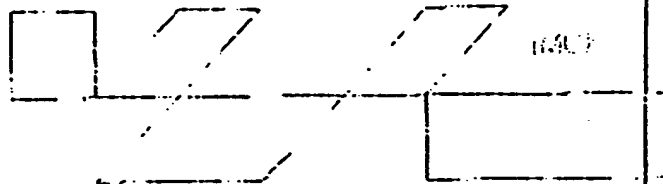


Figure 14: MOK and CCK signals.

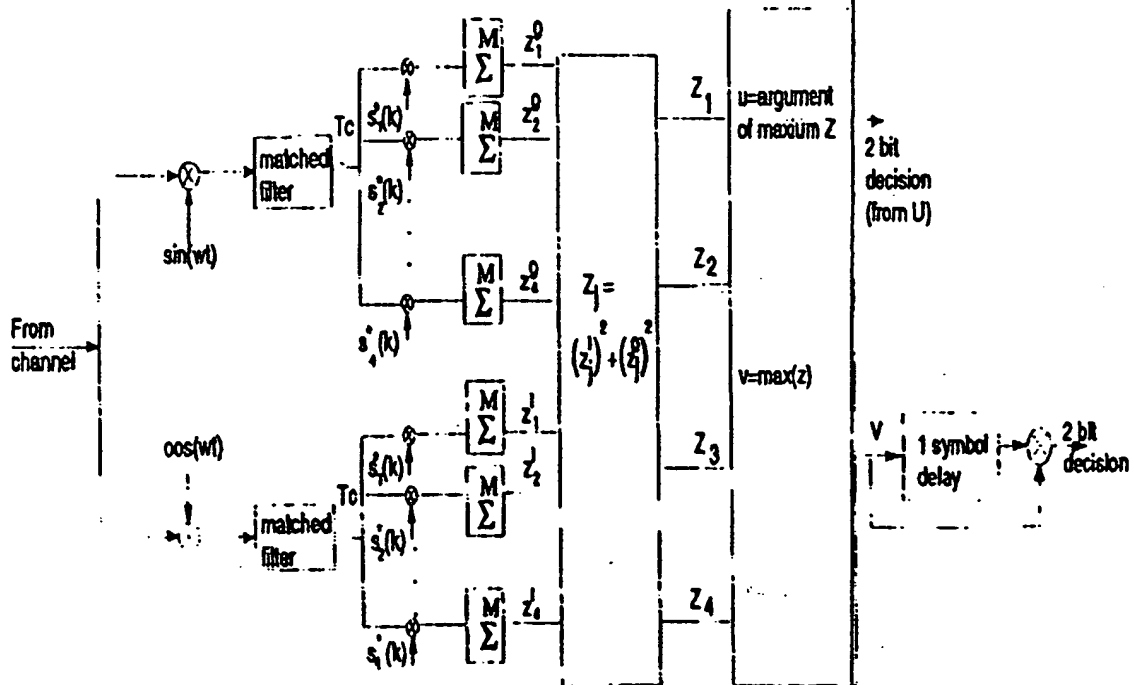


Figure 15: Noncoherent CCK Detector.



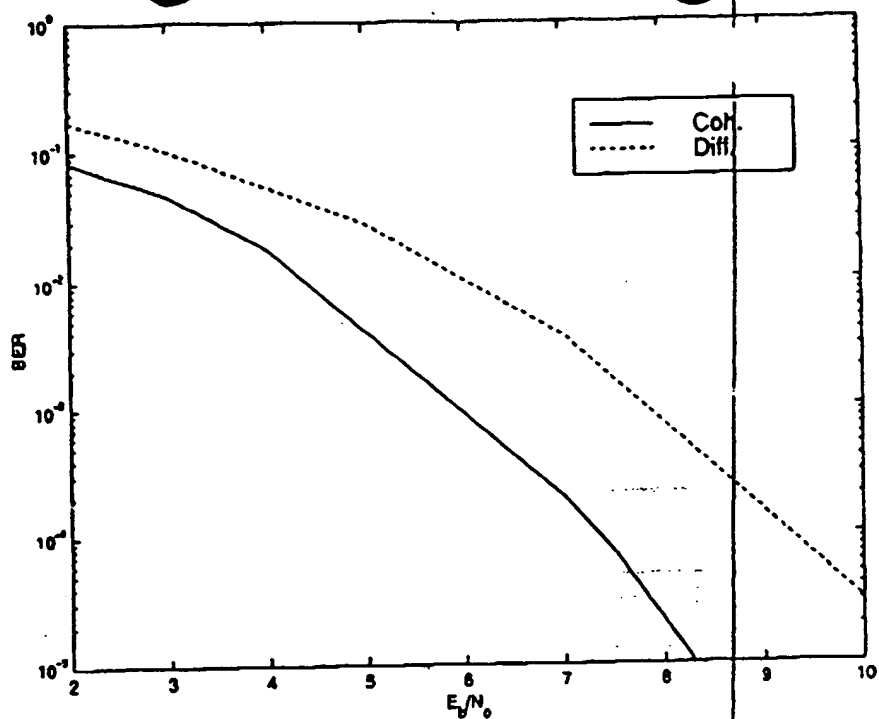


Figure 16: Performance of coherent and noncoherent detectors for CCK in AWGN

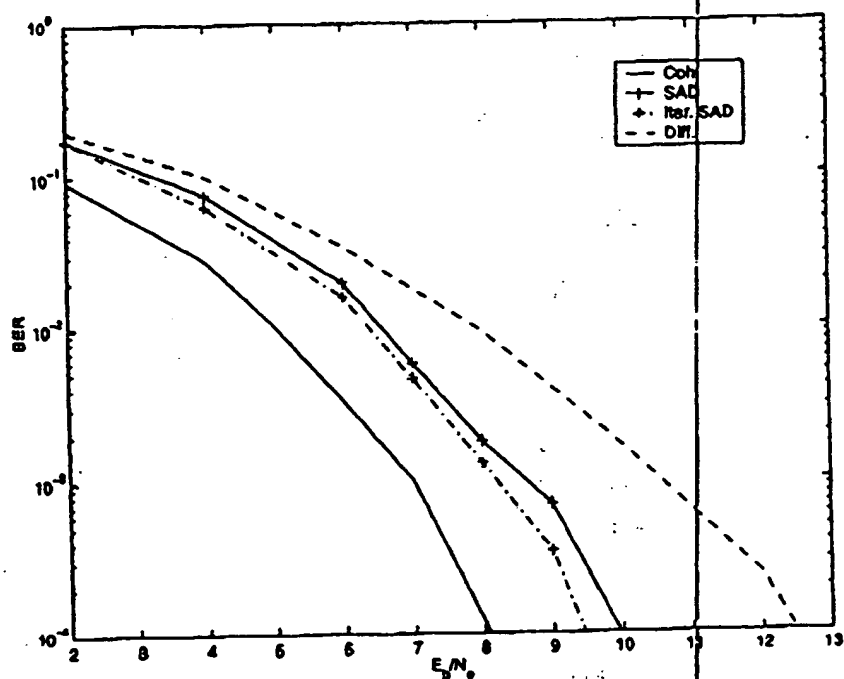


Figure 17: BER performance for CCK,  $J_{\max} = 10$ ,  $K = 10$  (Rician Fading).

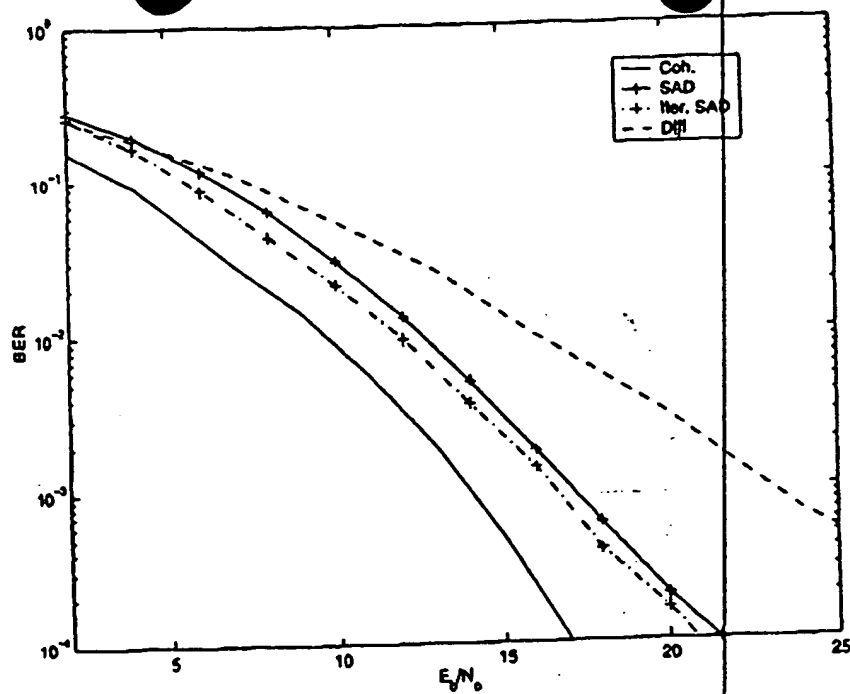


Figure 18: BER performance for CCK,  $J_{\max} = 40$ ,  $K = 0$  (Rayleigh Fading).

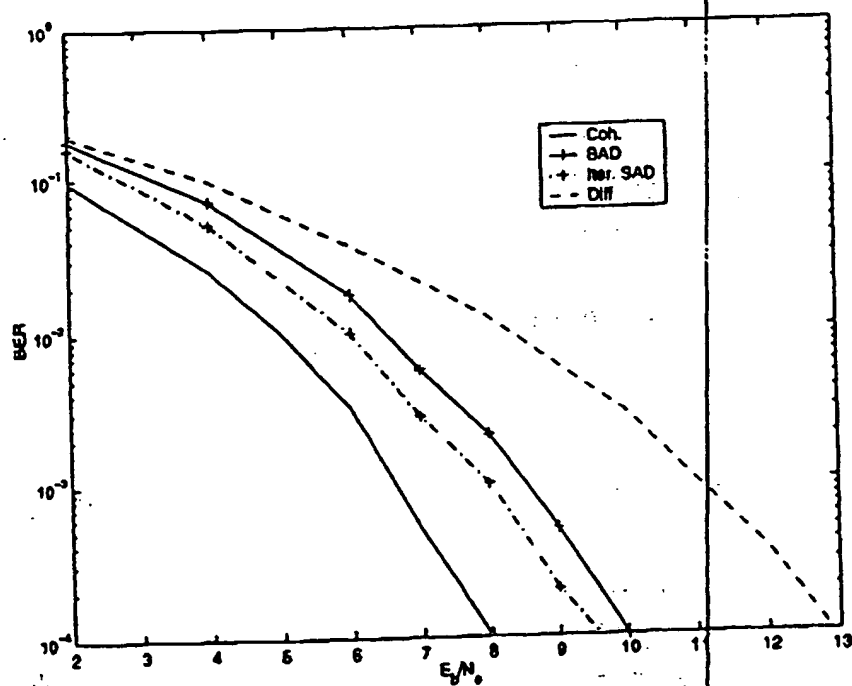


Figure 19: BER performance for CCK,  $J_{\max} = 40$ ,  $K = 10$  (Rician Fading).